

AMENDMENTS TO THE CLAIMS

1-36. (Cancelled)

37. (New) A refrigerating storage cabinet comprising:

a refrigeration unit for refrigerating an inner atmosphere, the refrigeration unit having a compressor and an evaporator, the compressor having a plurality of performance levels;

a temperature sensor configured to detect a current temperature of the inner atmosphere at predetermined intervals of operating time; and

an operation control unit configured to control the compressor by selecting one of the plurality of performance levels based on the current temperature, the operation control unit including:

a temperature change computing section configured to compute a current temperature reduction degree at the predetermined intervals of operating time, based on the current temperature and a previously detected temperature;

a target temperature reduction degree output section configured to obtain a target temperature reduction degree associated with the current temperature;

a comparing section configured to compare the current temperature reduction degree to the target temperature reduction degree; and

a compressor control section configured to select one of the plurality of performance levels based on a result of the comparison made by the comparing section.

38. (New) A refrigerating storage cabinet according to claim 37, wherein:

the compressor is a speed-controllable inverter compressor; and

the operation control unit is configured to control the inverter compressor so that a rotational speed of the inverter compressor is increased when the comparing section indicates that the current temperature reduction degree is smaller than the target temperature reduction degree and the rotational speed of the inverter compressor is decreased when the comparing section indicates that the current temperature reduction degree is larger than the target temperature reduction degree.

39. (New) A refrigerating storage cabinet according to claim 37, further comprising:

a storing unit configured to store a reference table having a plurality of target temperature reduction degrees associated with a plurality of temperatures individually representing a temperature of the inner atmosphere, wherein

the plurality of target temperature reduction degrees is predetermined according to an ideal cooling characteristic that indicates a target temperature as a function of operating time, the target temperature decreasing gradually with a lapse of operating time according to the ideal cooling characteristic; and

the target temperature reduction degree output section obtains the target temperature reduction degree by retrieving a target temperature reduction degree associated with the current temperature from the reference table.

40. (New) A refrigerating storage cabinet according to claim 39, wherein:

the ideal cooling characteristic includes a pull down characteristic for a temperature range from above a predetermined high temperature to near a set temperature; and

the predetermined high temperature is set to be higher than the set temperature by a value larger than a predetermined value.

41. (New) A refrigerating storage cabinet according to claim 40, wherein:

the pull down characteristic is a linear function; and

the reference table includes target temperature reduction degrees, which are predetermined according to the pull down characteristic and have a constant value.

42. (New) A refrigerating storage cabinet according to claim 40, wherein the pull down characteristic is a quadratic function.

43. (New) A refrigerating storage cabinet according to claim 40, wherein the pull down characteristic is an exponential function.

44. (New) A refrigerating storage cabinet according to claim 40, wherein:

the ideal cooling characteristic includes an upper limit temperature that is higher by the predetermined value than the set temperature, a lower limit temperature that is lower by the

predetermined value than the set temperature, and a control-cooling characteristic for a control-cooling zone between and including the upper limit temperature and the lower limit temperature;

when the current temperature reaches the lower limit temperature from a temperature higher than the lower limit temperature, the compressor is turned off by the operation control unit; and

when the current temperature reaches the upper limit temperature from a temperature lower than the upper limit temperature, the compressor is turned on by the operation control unit.

45. (New) A refrigerating storage cabinet according to claim 44, wherein the control-cooling characteristic is a linear function.

46. (New) A refrigerating storage cabinet according to claim 44, wherein the control-cooling characteristic is a quadratic function.

47. (New) A refrigerating storage cabinet according to claim 44, wherein the control-cooling characteristic is an exponential function.

48. (New) A refrigerating storage cabinet according to claim 40, wherein:
the pull down characteristic includes a first pull down zone and a second pull down zone;
the pull down characteristic includes a pull down characteristic that is provided for the first pull down zone and is a linear function; and
the pull down characteristic includes a pull down characteristic that is provided for the second pull down zone and is a quadratic function.

49. (New) A refrigerating storage cabinet according to claim 39, wherein the ideal cooling characteristic includes a plurality of cooling characteristics, which are individually provided for different zones of the temperature of the inner atmosphere.

50. (New) A refrigerating storage cabinet according to claim 40, wherein the pull down characteristic includes a plurality of pull down characteristics, which are individually provided for different zones of the temperature of the inner atmosphere.

51. (New) A refrigerating storage cabinet according to claim 50, wherein:

the plurality of pull down characteristics include a first pull down characteristic and a second pull down characteristic;

the target temperature decreases with a first temperature drop degree and with a lapse of operating time, according to the first pull down characteristic;

the target temperature decreases with a second temperature drop degree and with a lapse of operating time, according to the second pull down characteristic;

the first temperature drop degree is set to be smaller than the second temperature drop degree; and

the target temperature reduction degree output section obtains the first temperature drop degree as the target temperature reduction degree when a difference between the current temperature and the set temperature is less than a predetermined amount, and obtains the second temperature drop degree as the target temperature reduction degree when the difference between the current temperature and the set temperature is greater than or equal to the predetermined amount.

52. (New) A refrigerating storage cabinet according to claim 50, wherein:

the plurality of pull down characteristics includes an auxiliary cooling characteristic having a temperature curve that converges at a temperature higher by an auxiliary predetermined value than the set temperature; and

the target temperature reduction degree output section determines the target temperature reduction degree according to the auxiliary cooling characteristic when a difference between the current temperature and an evaporation temperature of the evaporator is at or above a predetermined auxiliary temperature value.